

Wind turbine connected to power station





Overview

How do offshore wind turbines work?

Offshore wind turbines are interconnected through an array of cables that transmit power to a central offshore substation. The substation acts as a hub, aggregating the energy produced by multiple turbines. From there, subsea export cables transport the power onshore, where it is distributed through the local grid connection system.

How a wind turbine converts kinetic energy into electricity?

Electric power generation: The kinetic energy of the wind is transformed into electricity by the wind turbines. Transformation and adaptation: The electricity initially generated is alternating current (AC), but its voltage is not suitable for transmission. A transformer is used to raise the voltage to levels compatible with high voltage lines.

How do wind turbines produce electricity?

The main process includes various steps starting from generation to transmission. Electric power generation: The kinetic energy of the wind is transformed into electricity by the wind turbines. Transformation and adaptation: The electricity initially generated is alternating current (AC), but its voltage is not suitable for transmission.

What are the main functions of a wind turbine?

They house transformers and switchgear that help manage the flow of electricity. Substations are responsible for stepping up the voltage from the turbine level to the transmission level, making them essential for efficient power distribution. Grid integration involves connecting the wind turbine-generated electricity to the power grid.



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